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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,703	02/19/2004	Jeffrey R. Baxter	010121-5043-01	5547
23409	7590	01/12/2005		EXAMINER
MICHAEL BEST & FRIEDRICH, LLP 100 E WISCONSIN AVENUE MILWAUKEE, WI 53202			CAMPBELL, THOR S	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/782,703	BAXTER, JEFFREY R.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thor S. Campbell	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 November 2004.  
 2a) This action is **FINAL**.                                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 14-22 and 30-62 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 14-22 and 30-62 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 19 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of claims 30-43 in the reply filed on 11/29/04 is acknowledged. The traversal is on the ground(s) that the restriction requirement was improper since there was no undue burden to the examiner being that the inventions were classified in the same class/subclass. This is not found persuasive, however, applicant's new claims 44-62 effectively link the inventions of Groups II and IV.

The requirement is withdrawn. An action on the merits of claims 14-22, and 30-62 follows.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 14, 16-18, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Lowenstein et al. (US 6363218).

Lowenstein discloses a multiple heating element water heater having upper and lower heating elements, upper and lower temperature sensors and a control means comprising the steps of sensing a first temperature with the first temperature sensor, sensing a second temperature with the second temperature sensor preventing power to the second heating element and controllably providing power to the first heating element if the first temperature is below a first set point, the second temperature is above a second set point, preventing power to the first heating element and controllably providing power to the second heating element if the second temperature is below a second set point and zero or more other conditions exist; and preventing power to the first and second heating elements if the first and second temperatures are above the first and second set points, respectively.

Claims 30, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Dosani et al. (US 5808277).

Dosani discloses a water heater control means including controllably providing power to the first and second heating elements to heat water stored in the water tank, detecting the failure of one of the first and second heating elements; if detecting the failure of one of the first and second heating elements, preventing power to the failed heating element; and controllably providing power to the non-failed heating element to heat water stored in the water tank, and issuing an alarm to indicate element failure.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein et al. (US 6363218).

Lowenstein discloses the claimed invention except specifically the set points being the same. Although Lowenstein does not explicitly disclose the set points to be the same, applicant has not disclosed that the set points being the same solves any stated problem or is for any particular purpose. One of ordinary skill in the art would have found it obvious to program the set points the same in order to have continual heating at the set point.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein et al. Lowenstein discloses the claimed invention except the explicit teaching of the location of the thermal cut-off temperature sensor. Lowenstein does disclose the use of such a temperature sensor and it is well known in the art to position such a temperature sensor at or near the water outlet pipe in a water heater as means to sense the highest temperature in the system and prevent dangerously hot water from being delivered to the user as well as using the signal from such a sensor to prevent power to the heating elements. It would have been obvious to one of ordinary skill in the art to provide such a temperature sensor as is known in the art to do so, and indeed suggested by Lowenstein.

Claims 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosani (US 5808277).

Dosani discloses the claimed invention except the specific calculations for detecting the element failure, i.e. calculating current in or resistance of the heating element. It is noted that the current and resistance in a electrical circuit are governed by  $V=I R$ . As such, a device that calculates resistance is inherently capable of calculating current in the same circuit given the a the voltage, line voltage is constant. One of ordinary skill would find it obvious to calculate either resistance or current to indicate failure of an electric element and to use that calculation to cut power to the circuit determined to have failed.

Claims 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dosani in further view of common knowledge in the art.

Dosani discloses the claimed invention as describe with respect to claims 32-38, except the shut down of all the elements in the event dryfire is detected/indicated. It is common knowledge in the art of water heating to prevent the activation of all elements upon the determination of a dry fire condition. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a means for cutting power to all elements in the event a dry fire condition is indicated.

Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dosani (US 5808277) in view of Wilson (US 6242720).

Dosani discloses a water heater control means including controllably providing power to the first and second heating elements to heat water stored in the water tank, detecting the failure of one of the first and second heating elements; if detecting the failure of one of the first and

second heating elements, preventing power to the failed heating element; and controllably providing power to the non-failed heating element to heat water stored in the water tank, and issuing an alarm to indicate element failure. Dosanin does not explicitly disclose the calculation of the time rate of change in order to indicate element failure. Wilson discloses a water heater using a calculation of the time rate of change of the temperature of the water sensed as a means to indicate element failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the time rate of change methodology as taught by Wilson as an indication of element failure and to cut power to the heating element determined to have failed based on the indication as at least a secondary means for indicating element failure.

Claims 44-52, 54, 56-62 rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein in view of Dosani (US 5808277).

Lowenstein discloses a multiple heating element water heater having upper and lower heating elements, upper and lower temperature sensors and a control means comprising the steps of sensing a first temperature with the first temperature sensor, sensing a second temperature with the second temperature sensor preventing power to the second heating element and controllably providing power to the first heating element if the first temperature is below a first set point, the second temperature is above a second set point, preventing power to the first heating element and controllably providing power to the second heating element if the second temperature is below a second set point and zero or more other conditions exist; and preventing power to the first and second heating elements if the first and second temperatures are above the first and second set points, respectively.

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Dosani discloses a water heater control means including controllably providing power to the first and second heating elements to heat water stored in the water tank, detecting the failure of one of the first and second heating elements; if detecting the failure of one of the first and second heating elements, preventing power to the failed heating element; and controllably providing power to the non-failed heating element to heat water stored in the water tank, and issuing an alarm to indicate element failure. Dosanin does not explicitly disclose the calculation of the time rate of change in order to indicate element failure. Wilson discloses a water heater using a calculation of the time rate of change of the temperature of the water sensed as a means to indicate element failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the time rate of change methodology as taught by Wilson as an indication of element failure and to cut power to the heating element determined to have failed based on the indication as at least a secondary means for indicating element failure.

Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein in view of Dosani in further view of common knowledge in the art.

Lowenstein in view of Dosani discloses the claimed invention, except the shut down of all the elements in the event dryfire is detected/indicated. It is common knowledge in the art of water heating to prevent the activation of all elements upon the determination of a dry fire condition. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a means for cutting power to all elements in the event a dry fire condition is indicated.

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein in view of Dosani.

Lowenstein discloses a multiple heating element water heater having upper and lower heating elements, upper and lower temperature sensors and a control means comprising the steps of sensing a first temperature with the first temperature sensor, sensing a second temperature with the second temperature sensor preventing power to the second heating element and controllably providing power to the first heating element if the first temperature is below a first set point, the second temperature is above a second set point, preventing power to the first heating element and controllably providing power to the second heating element if the second temperature is below a second set point and zero or more other conditions exist; and preventing power to the first and second heating elements if the first and second temperatures are above the first and second set points, respectively.

Dosani discloses a water heater control means including controllably providing power to the first and second heating elements to heat water stored in the water tank, detecting the failure of one of the first and second heating elements; if detecting the failure of one of the first and second heating elements, preventing power to the failed heating element; and controllably providing power to the non-failed heating element to heat water stored in the water tank, and issuing an alarm to indicate element failure. . Dosanin does not explicitly discloses the calculation of the time rate of change in order to indicate element failure. Wilson discloses a water heater using a calculation of the time rate of change of the temperature of the water sensed as a means to indicate element failure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the time rate of change methodology as taught by Wilson as an indication of element failure and to cut power to the heating element determined to have failed based on the indication as at least a secondary means for indicating element failure.

Although Lowenstein/Dosani does not explicitly disclose the set points to be the same, applicant has not disclosed that the set points being the same solves any stated problem or is for any particular purpose. One of ordinary skill in the art would have found it obvious to program the set points the same in order to have continual heating at the set point.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowenstein.

Lowenstein discloses the claimed invention with the exception of the steps of manually ceasing normal operation to enter boost operation. It is generally well known in the art to provide manual controls for automated systems both for safety and convenience. It would have been obvious to provide a manual means for ceasing normal operation to enter boost operation for convenience.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thor S. Campbell whose telephone number is 571-272-4776. The examiner can normally be reached on Tue-Fri 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TSC

THOR S. CAMPBELL  
PRIMARY EXAMINER

